LOW TEMPERATURE THERMAL DESORPTION OPERATING PLAN

CORNELL-DUBILIER ELECTRONICS SUPERFUND SITE SOUTH PLAINFIELD, NJ

SOIL TREATMENT USING LOW TEMPERATURE THERMAL DESORPTION (LTTD)

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1.0 INTRODUCTION

Maxymillian Technologies, Inc. (MT) has prepared the following Operating Plan for the Low Temperature Thermal Desorption (LTTD) unit at the Cornell-Dubilier Electronics (CDE) Superfund Site in South Plainfield, NJ. MT will utilize its Indirect Desorption System (IDS) for LTTD operations. This plan provides detailed information concerning essential aspects of LTTD unit operation including key project personnel, process engineering descriptions, standard operating and shutdown procedures, automated systems, monitoring and maintenance, waste disposal methods, and safety measures. The Operating Plan covers overall project organization, onsite coordination with Sevenson Environmental Services (SES), adjustments to LTTD components, and routine inspections. Some of the anticipated operating parameters are contingent upon the Proof of Performance Test results. MT will confirm site-specific operating parameters following the successful demonstration of the LTTD unit at the CDE site.

A schedule summarizing the LTTD operations at the CDE site is provided in Appendix A. The schedule provides an estimated timeline for overall LTTD operations including mobilizing, permitting, testing, operating, decontaminating, and demobilizing the facility. The exact sequence of events is subject to change based on the approval of MT plans and submittals and the Proof of Performance Test.

MT is committed to safely and efficiently operating the LTTD unit. MT will provide an experienced thermal team, well maintained components, and proven regulatory compliance systems to accomplish the goals of this remediation project.

2.0 PROJECT ORGANIZATION

MT has designated the following personnel for oversight and operation of the LTTD unit:

Executive Sponsor:	John Anthony	office:	413-499-3050
Onsite Project Manager/ Thermal Manager:	Jim Smith	cell:	413-447-1229
Construction Officer	Matt McCarthy	office:	781-890-8670
Project Engineer:	John Dupras, P.E.	office:	802-694-1919
Offsite Project Manager:	Gary Polumbo	cell:	413-822-4691
Pad Supervisors:	Dan Dargie	cell:	413-822-3569
	Brian Smith	cell:	617-908-3557
Health & Safety Officer:	Matt Orszulak	cell:	508-922-5856

The following is a brief description of the roles and responsibilities for MT personnel. Refer to Figure 1 for an Organizational Chart.

Executive Sponsor: John Anthony

John Anthony has served as Executive Sponsor for several of MT's prior thermal treatment projects. As Executive Sponsor, John will be responsible for executive oversight of all required work, and will serve as the lead contact between the Site Owner/Contractor and MT. He will be available at all times to meet with Sevenson Environmental Services (SES), the Environmental Protection Agency (USEPA), the Army Corps of Engineers (USACE), and the New Jersey Department of Environmental Protection (NJDEP) as necessary.

Onsite Project Manger /Thermal Manager: Jim Smith

Jim Smith has been an onsite Project Manager for twenty years, and has been involved in MT's prior eight thermal treatment projects with the IDS. He also served as the Project Manager in MT's RE-SOIL LTTD operations. As the onsite Project Manager / Thermal Manager (TM), Jim Smith will be responsible for the management of all aspects related to thermal operations. Jim is responsible for operation of the LTTD unit, including mobilization, setup, LTTD operations, decontamination, and demobilization. His responsibilities include crew management and equipment oversight. He will coordinate all activities pertaining to thermal operations with the Pad Supervisors as well as the Executive Sponsor and Construction Officer. Jim will manage all thermal personnel to ensure proper operations and policies are followed relative to thermal operations. Jim will supervise the Pad Supervisors as well as other thermally related project personnel. He will work with the Construction Officer and Health and Safety Officer (HSO) to ensure his crews are adhering to the Project Schedule requirements and to also ensure his crews are working safely. He will coordinate all site activities with the Offsite Project Manager.

Construction Officer: Matt McCarthy

Matt McCarthy has been an MT employee for twenty-five years. As the primary support manager for this project, Matt will provide in-office oversight for project operations and site activities. He will communicate daily with MT personnel to confirm that work is performed according to contract documents, estimates, plans, specifications, permit requirements, and submittals. Matt will coordinate the submission of required procedural plans and drawings, schedules, reports, and estimates. Although Matt will work offsite, he will routinely attend site meetings and perform site visits.

Offsite Project Manager: Gary Polumbo

Gary Polumbo has been involved in each of MT's eight prior LTTD projects. As an offsite Project Manager, Gary will assist the Executive Sponsor, Construction Officer, and onsite PM with all decisions necessary for the successful implementation and long-term coordination of the project.

Project Engineer: John Dupras, P.E. Trinity Engineering & Technical Services, LLC

As Project Engineer, John Dupras will assist with modifications of the LTTD to meet remediation goals. John will assist with drafting the initial Air Equivalency Application, and any necessary revisions. Upon mobilization and assembly of the LTTD, John will assist with the optimization of the LTTD, and the successful Proof of Performance Test. John will be available to address any engineering related issues that may arise during permitting, testing, and operations of the LTTD. John has served as a project engineer for each of MT's LTTD projects.

Pad Supervisors: Dan Dargie and Brian Smith

Pad Supervisors Dan Dargie and Brian Smith will be responsible for directing onsite activities during LTTD assembly and operations. Their responsibilities will include the supervision of all project field work including site preparations, operations, mechanical systems, and supervision of all operators and technicians. As necessary, they will report all operational procedures to the Onsite Project Manger. The Pad Supervisors will also report all health and safety issues to the Onsite Project Manager and HSO. Both Pad Supervisors are highly experienced with LTTD operations.

Health and Saftey Officer: Matt Orszulak

As the Site Health and Safety Officer (HSO), Matt will establish and oversee environmental and safety issues for all aspects of the LTTD operations. This includes providing training protocols, implementing programs, and documenting programs. Matt will ensure that all health and safety monitoring is performed in accordance with 29 CFR 1910.120 and that health and safety documents are maintained on-site as required. Matt will ensure compliance with all safety requirements of OSHA, USACE, EPA, SES, and MT.

The HSO will be responsible for conducting safety inspections and meetings. He will also conduct daily Toolbox Meetings (safety meetings). He will ensure that all health and safety documents are maintained on-site as required. All MT personnel will be required to attend any safety meetings conducted by the HSO or his appointed delegate. The Health and Safety Officer shall at a minimum carry the following responsibility/authority:

- Be present at all times during site operations (or delegated alternate);
- Have authority to stop operations for health and safety issues;
- Evacuate the site, if necessary;
- Make field decisions regarding safety and health.

System Operators/Maintenance Technicians

These individuals will be responsible for maintaining, operating, monitoring, and regulating the LTTD unit.

Materials Handling Operators

Materials handling operators will be responsible for the preparation and transportation of contaminated soil to the soil handling building. They will also handle the preparation and feeding of soils to the LTTD unit.

Figure 1

Project Organizational Chart

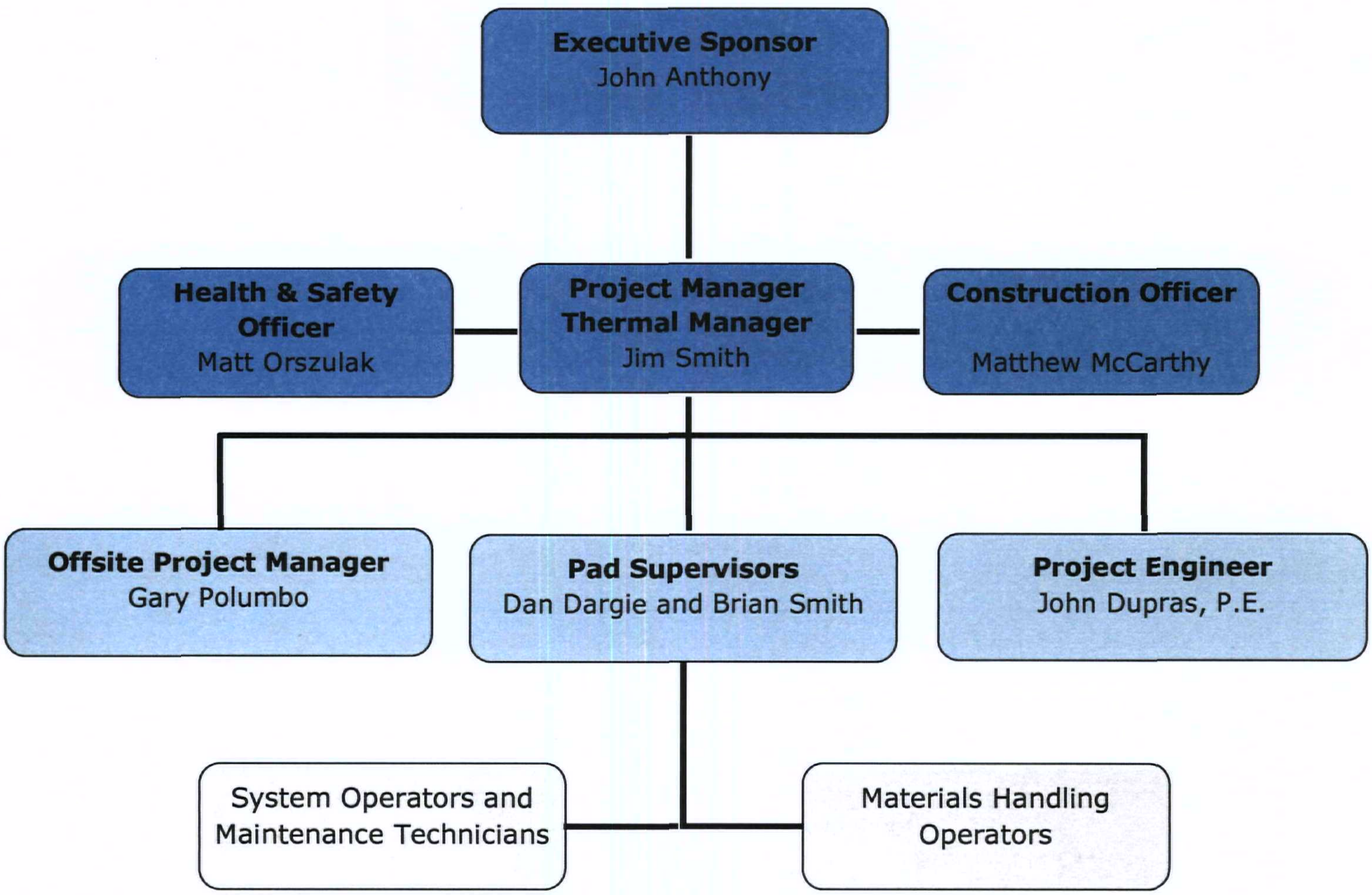


Table 1: Additional Office Staff Support

Employee	Title	Years with MT	Role and Responsibility
Vern Palen	Senior Vice President/ Operations Manager	29	Vern oversees all ongoing site operations, and provides immediate support to projects in need of additional supervision, equipment, or materials.
Wayne McCauley	Project Engineer	24	Wayne directs a team of engineers and technicians who are responsible for providing submittals, procuring materials, and hiring subcontractors.
Philip Scalise	Estimating Manager	17	As MT's Estimating Manager, Philip is involved in the development of construction cost estimates and cost effectively adjusting for changes in quantities, conditions, or subcontractors.
Sara Kelley	Subcontracts Manager	10	Along with the Project Manager and Operations Manager, Sara will ensure subcontractor agreements are in place and are managed properly.
Bruce Rustemeyer	Dispatcher	24	Bruce coordinates the arrival of technicians and other staff to the project, and directs all deliveries of major equipment and supplies.
Tony Consolini	Master Mechanic	33	Tony manages a team of mechanics and technicians to procure and maintain our heavy construction equipment.
Jeff Longcor	Senior Associate	2	Jeff assists the Executive Sponsor, Construction Officer, and Offsite Project Manager with technical writing, schedule preparation, vendor/material pricing, and preparation of required plans and submittals.

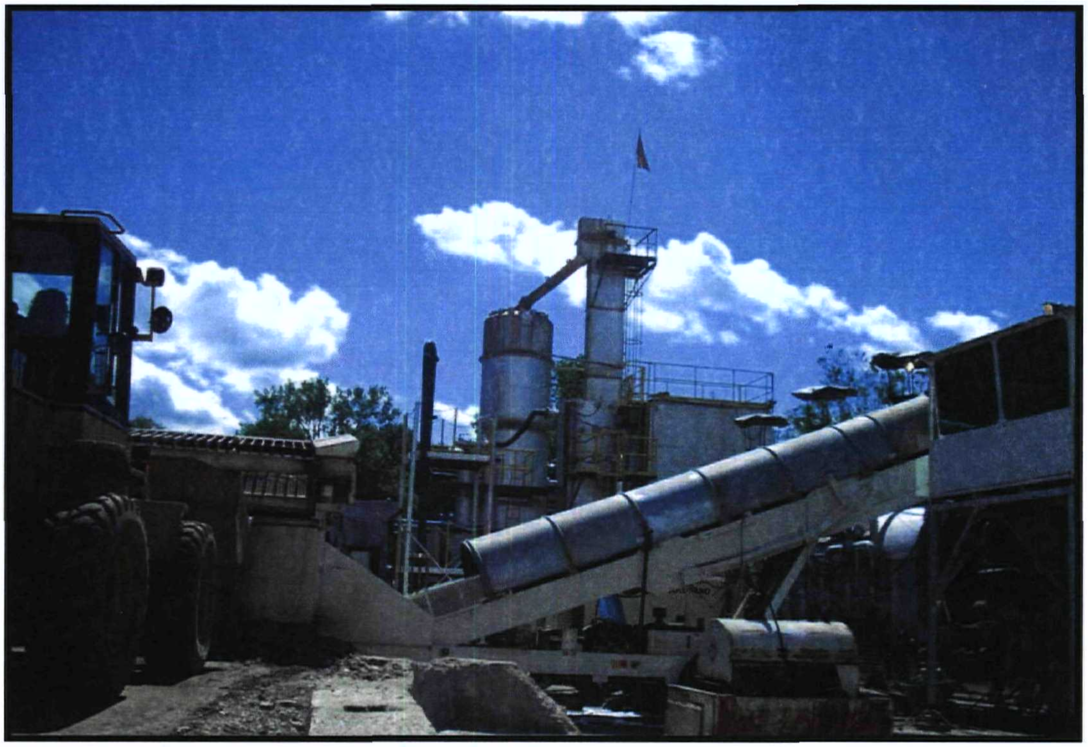
3.0 PROCESS ENGINEERING DESCRIPTION

The following process engineering description is included to provide a general overview of the LTTD system components.

3.1 SOIL FEED SYSTEM

The LTTD unit is equipped with a self contained hydraulic Screen/Feed Hopper. Material is loaded via front-end loader into the Screen/Feed Hopper. From there soil travels along a Feed Conveyor equipped with a weigh scale to a Feed Pugmill, from which it is fed to the indirectly heated Thermal Desorber. A seal is maintained in the Feed Pugmill to ensure that ambient air does not enter the Thermal Desorber

The feed rate through the Portable Screen Plant is controlled by the Control Room Operator. The Operator views material as it flows up the Main Conveyor and discharges to the Feed Pugmill Hopper. Also located in the Control Room is an on/off switch and an emergency shutdown switch for the motors that power the Feed Screen.



Soil Feed System including Screen/Feed Hopper, feed pugmill, and conveyor

3.2 SOIL HANDLING

Excavated soil from the SES soil storage building is transported to the MT soil handling building by vehicle (i.e., front end loader). The soil will be piled in the building and worked with the loader to produce a homogeneous contaminant matrix. Soil is deposited into a Feed Soil Hopper, passes through a soil screener and is then transferred onto the conveyor, which feeds soil into the LTTD unit. Soil handling activities for the LTTD unit are conducted indoors. An air handling system will be installed within the soil handling building so that potential emissions from soil handling activities can be diverted to a carbon adsorber unit and exhausted through a point source.

Soil exiting the LTTD unit is transferred by a conveyor and deposited on the ground near the facility. The cleaned soil, which has already been rehydrated, is sprayed with water to increase the moisture content of the soil and to prevent fugitive dust emissions during the transfer and storage of the soil. Once the soil is confirmed cleaned, SES will transfer the cleaned soils to stockpiles for temporary storage prior to re-use as fill materials.

3.3 INDIRECTLY HEATED DESORBER

From the Feed Pugmill, contaminated materials are fed through a sealed end plate into the Thermal Desorber. The Desorber consists of an inner rotating shell surrounded by an outer shell. The soils travel through the 5 foot diameter by 48 foot long rotating shell that is indirectly heated to the required temperature. Burners placed along the outside of the shell fire into the annular space between the inner and outer shells. Heat is transferred through the inner shell providing indirect heat to the soil. The steel outer shell is insulated to minimize heat loss. Temperatures throughout the length of the Thermal Desorber are carefully controlled. The soil exit temperature may be modified based on site soil conditions and the composition of contaminants in the soil. Combustion gases do not come in contact with the soils, volatilized contaminants or desorbed gases. Seals are located at both ends of the inner shell. Refer to Figure 2 for a process flow diagram of the LTTD system.

The LTTD unit has a maximum short-term soil processing capacity of 20 ton/hr and an annual average processing capacity of 18 tons/hr. The LTTD unit is fueled by propane and is equipped with six burners. The burners are equally spaced at the base of the outer wall of the Calciner. The products of combustion are exhausted through one of three stacks equally spaced along the top of the Calciner.

3.4 VAPOR TREATMENT SYSTEM

The gas stream containing volatilized contaminants, vaporized water, and entrained particulate, exits the Desorber Breach and enters the Baghouse. The Baghouse is capable of filtering gases at high temperatures to remove particulate from the gas stream. Maintaining a high temperature in the Baghouse allows clean particulate to be removed from the waste stream. The clean particulate is then combined in the Exit Breach Hopper with clean material exiting the Desorber.

The gases, which are now filtered and substantially free of particulate, exit the high temperature Baghouse and enter the Quench. Gases are first saturated and then further cooled by the Quench recirculation pumps. Water is drawn from the bottom of the Quench Sump and recirculated through nozzles at the top of the Quench to sub-cool the gases below saturation temperatures. By sub-cooling the gas stream, steam contained in the gas stream is changed to the liquid phase. This liquid accumulates in the Quench Sump, and is drawn off by gravity as required to maintain an adequate quench water level. The water drawn off is sent to the liquid treatment system. The LTTD unit is designed to condense and collect the bulk contaminants in the liquid phase at the Quench.

Vapor Cooling and Filtration Systems

Left: Baghouse (removes particulate) and Quench (cools vapor and removes contaminants)
Middle: Carbon Preheat, Carbon Vessels, and HEPA filter treatment train cleans the vapor stream (Trailer #2)
Right: Cooler to regulate Quench water temp and Chiller to reduce glycol temp in condenser tubes (Trailer #4)

Gases leaving the Quench are now free of all bulk contaminants and contain only trace amounts of contaminants. The remainder of the air pollution control devices are designed to separate the trace contaminants from the gas stream. Gases leave the Quench and enter the Primary Condenser. The Primary Condenser is a single pass shell and tube design. Non-contact coolant fluid consisting of a water and glycol mixture is supplied by the Chiller and routed through the Primary Condenser. The purpose of the Primary Condenser is to reduce the moisture content of the gas stream by further sub-cooling the process gas stream. Any moisture collected from the Primary Condenser is routed to the Water Treatment System. The Primary Condenser system is designed with an identical standby unit, which can be placed in service without interruption of soil feed, should it be necessary to take the lead Primary Condenser off-line.

Upon exiting the Primary Condenser, the gases are routed through a Coalescing Filter. The Coalescing Filter is designed to trap very fine oil droplets which might be suspended in the gas stream following the Quench and Condenser. By removing any suspended mist or droplets, the gas stream is conditioned to improve the efficiency and the life of the downstream Vapor Phase

Carbon. The Coalescing Filter is preceded by a Prefilter Box. The Prefilter Box is designed to protect and extend the life of the Coalescing Filter by trapping any trace, very fine particulate which might be suspended in the gas stream. Any mist of droplets collected by the Prefilter or Coalescing filter are routed to the Water Treatment System. Filters are removed and replaced from the Prefilter Box as required and disposed of properly.

Process gases exit the Coalescing Filter Cabinet and pass through a HEPA filter. This HEPA filter is designed to further polish the gas stream of any entrained particulate.

Gases now pass through the Vapor Phase Carbon Preheater. The Preheater is a non-contact fin and tube heat exchanger that raises the temperature of the gas stream as required. The Preheater is used under cold weather conditions, and only as needed to assist in eliminating any free moisture carryover to the downstream Vapor Phase Carbon Bed.

Gases then pass through the Vapor Phase Carbon Beds. The Vapor Phase Carbon beds consist of three vessels, each containing 1000 pounds of carbon. The vessels are arranged to allow for lead/lag operation. The process gases will pass through the Lead Vessel first, and then be routed through the Lag Vessel. The Final Vapor Phase Carbon Vessel is identical to the vessels used in the lead/lag team. Although the last carbon vessel is not expected to receive any appreciable loading of hydrocarbons, it has been included in the process to serve as a polish.

Upon exiting the Final Vapor Phase Carbon Vessel, the gases are routed through a HEPA filter to capture any carbon particulate escaping the final carbon vessel.

The air pollution control equipment and all interconnecting piping are grounded against static electricity. The ID fan is constructed of non-sparking materials with an explosion proof drive system. These safety measures will prevent the possible ignition of any vapors in the gas stream. At the completion of the vapor treatment phase the vapors are routed to the Calciner exhaust burners.

The entire LTTD unit takes advantage of non-contact and closed loop systems for heating process materials. These closed loop systems isolate the contaminated materials, thereby minimizing the waste stream that must be cleaned or disposed.

3.5 Treated Soil Handling System

The decontaminated soil exits the inner shell of the Thermal Desorber and enters the soil exit breach hopper. This treated soil, combined with clean particulate removed from the gas stream by the Baghouse, travels up the Discharge Auger to the base of the Bucket Elevator. The Soil Discharge Auger is fully enclosed and sealed to prevent fugitive emissions. The Bucket Elevator vertically transports the soil to a Discharge Chute. The Elevator is designed to handle a maximum of 50 tons of soil per hour. From the Elevator Discharge Chute the soil enters the top of the Soil Cooling Silo. Soil travels down vertically through the Silo and is discharged at the bottom.

The Bucket Elevator and Soil Cooling Silo

The Soil Cooling Silo has an inside diameter shell of 8 feet and an overall height of 38 feet. The interior of the Silo contains several 8 inch diameter carbon steel pipes. Non-contact ambient air is forced upward through the pipes. The heat of the soil is transferred through the pipes to the non-contact air. The clean soil exits the Double Dump Valve. The Double Dump Valve provides a secure air seal between the process gases and the atmosphere, by ensuring that only one dump valve is open at a time when soil is moving through the valves. The Dump Valve is pneumatically activated to open and dump soil to the bottom valve. Once the upper valve is closed, the lower valve is actuated and the soil is dropped into the soil Discharge Pugmill for final cooling and remoisturization.

Water nozzles are located in the Pugmill to provide reintroduction of moisture to the treated soil as well as additional cooling. Cooling and remoisturizing water used in the soil Discharge Pugmill is water treated in the Series 3A Water Treatment System. The indirect cooling process incorporated into the Silo minimizes the use of water for cooling the soil.

Treated materials exit from the Discharge Pugmill via a Hooded Radial Stacking Conveyor to a processed soil stockpile area to await verification of decontamination. The Hooded Conveyor provides additional dust control. When necessary, treated soils are rehydrated by a secondary water spray system located at the end of the Discharge Conveyor.

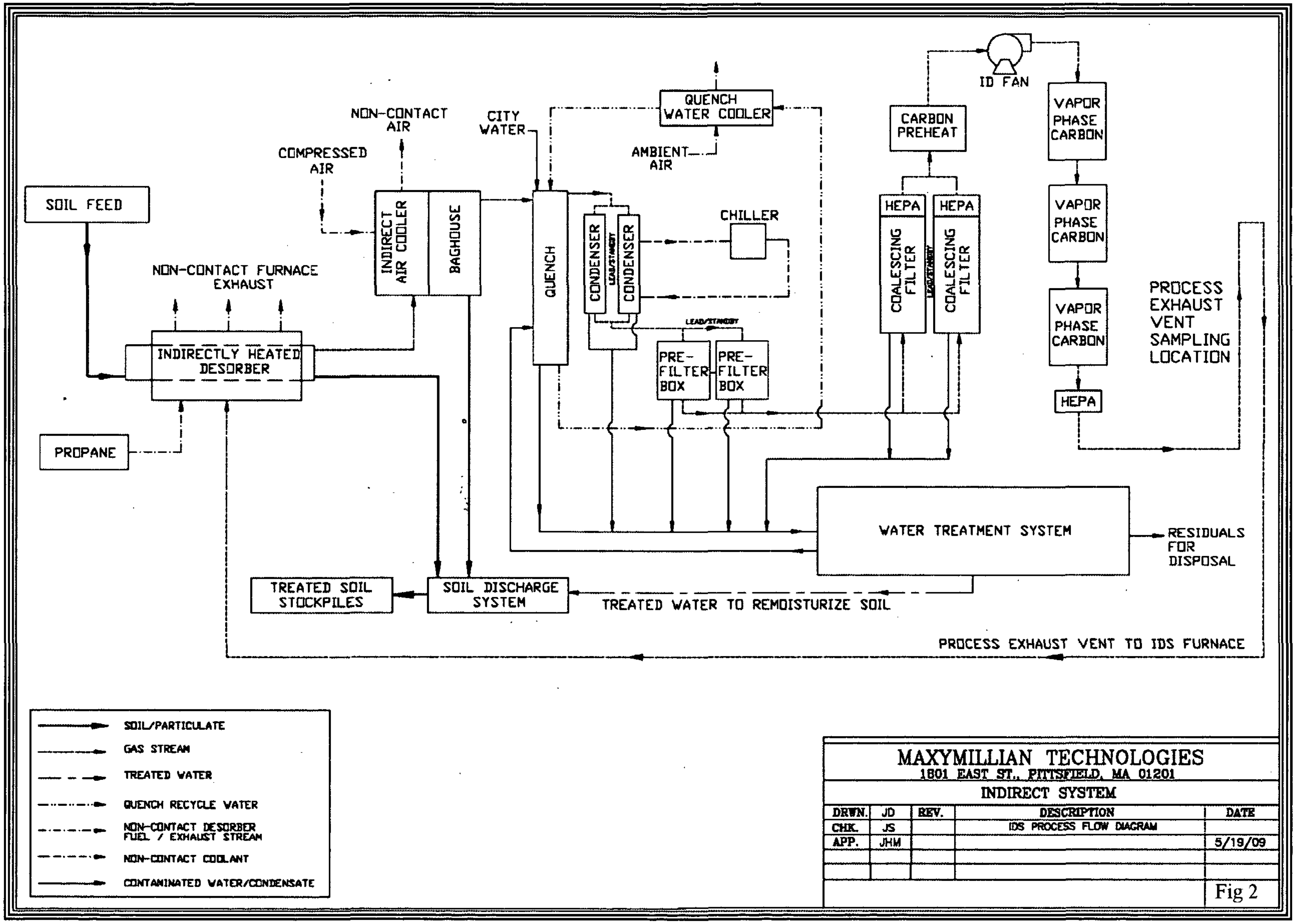
Soil Discharge System and clean soil stockpile

3.6 FUGITIVE EMISSIONS CONTROL SYSTEM

The primary potential source of fugitive emissions is dust and steam emission from the Soil Discharge System. Although both dust and steam from this point are clean, these emissions are actively controlled by an LTTD Technician using a variety of mechanisms. Treated materials are discharged from the Soil Cooling Silo in a controlled fashion. In addition, water sprays and misters are located within the Discharge Pugmill and Radial Stacking Conveyor. These water sprays mitigate dust generation.

The secondary source of fugitive emissions is the desorption stage of the LTTD system. The LTTD unit is kept under negative draft by an Induced Draft (ID) fan. Negative pressure prevents fugitive emissions of gases and particulates from the LTTD unit to the atmosphere. In addition, highly efficient seals are used at the feed and discharge ends of the Thermal Desorber.

Figure 2: LTTD Process Flow Diagram



3.7 WATER TREATMENT SYSTEM

Liquid effluents from the air pollution control system are diverted to an onsite Water Treatment System located within a temporary building (separate from the soil handling operations).

Liquid effluents initially pass through a Filter Press to remove solids that were not removed from the vapor stream by the Baghouse. The liquid stream then flows through an Oil-Water Separator where constituents consisting primarily of PCB oils are separated from the water stream. The PCB oils are pumped to a 7500-gallon tank for storage prior to disposal. The effluent is then pumped to a 20,000-gallon tank for temporary storage prior to treatment by the Series 3A Water Treatment System. Initial treatment within the Series 3A includes chemical addition in the pH Adjustment Tank, and flocculant addition within a Chemical Mixing Tank/Flocculator. Upon pH adjustment and polymer addition, suspended solids are removed by a Clarifier. The water from the Clarifier then passes through Dual Particulate Bag Filters to remove small micron suspended solids. Flow can be directed to one bag filter, while the other is being replaced. Final treatment within the Series 3A is by four lead/lag liquid phase Granular Activated Carbon (GAC) absorbers. The stream flows sequentially through two 1,000 lb vessels and two 1,500 lb vessels. The clean water effluent is stored in a 20,000 gal fractionation tank prior to being recycled to the Discharge Pugmill for cooling and re-moisturization of treated soils. Refer to Figure 3 for a process flow diagram of the Water Treatment System. The Series 3A Water Treatment Trailer is equipped with a Vapor Management System (VMS). A conceptual diagram for the Series 3A VMS is provided in Figure 4.

3.8 VAPOR MANAGEMENT SYSTEM

MT will install and operate a Vapor Management System (VMS) for the soil handling and water treatment temporary enclosures. These systems are separate from the Series 3A Water Treatment System VMS previously mentioned. The VMS will include an induced draft (ID) fan to circulate air and Vapor Phase Carbon Vessels for air treatment. The ID fan draws fresh air into the enclosure and drives air out through Vapor Phase Carbon Vessels and an exhaust stack. MT may install a separate VMS for each structure or a single VMS for both.

Figure 3: LTTD Water Treatment System Process Flow Diagram

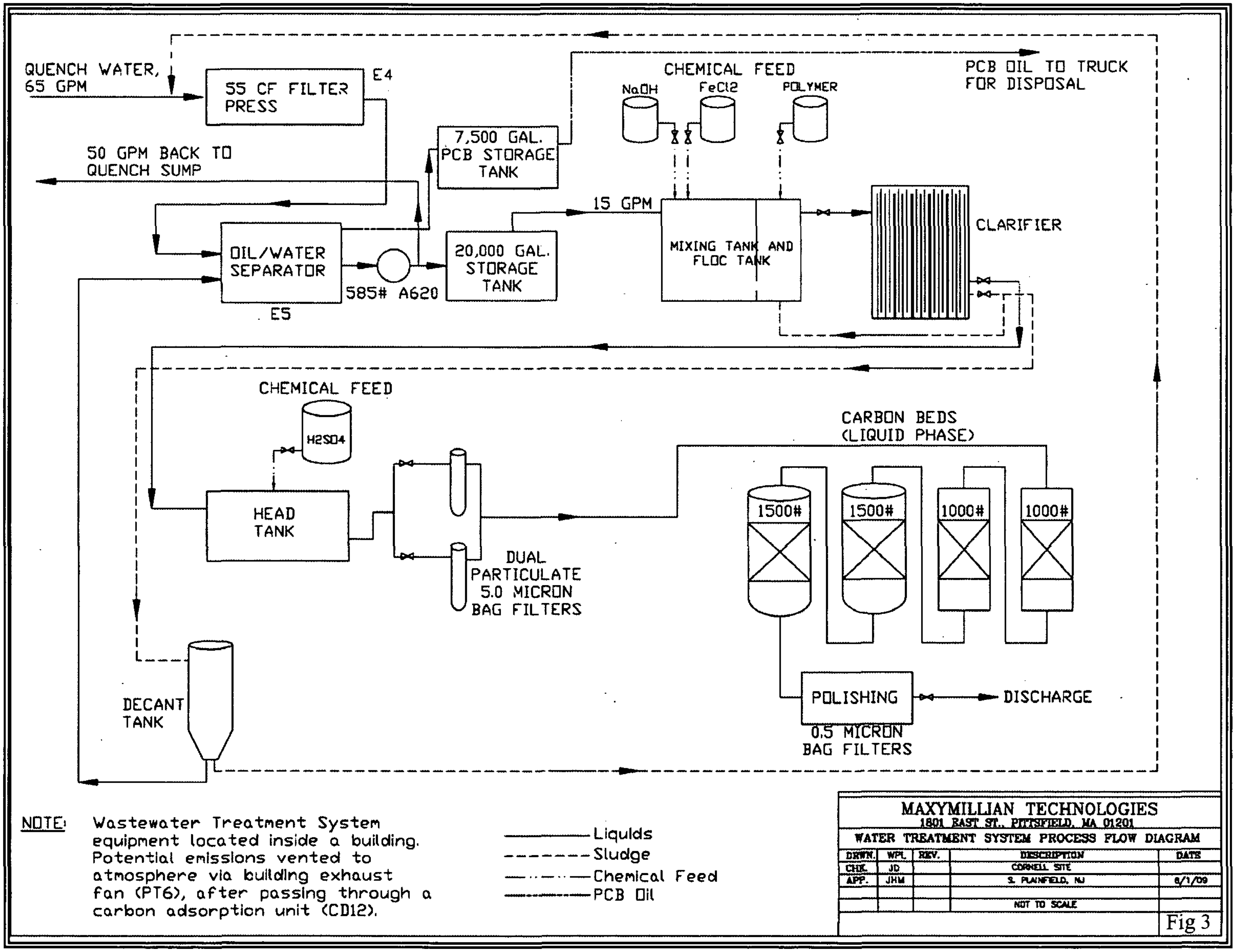
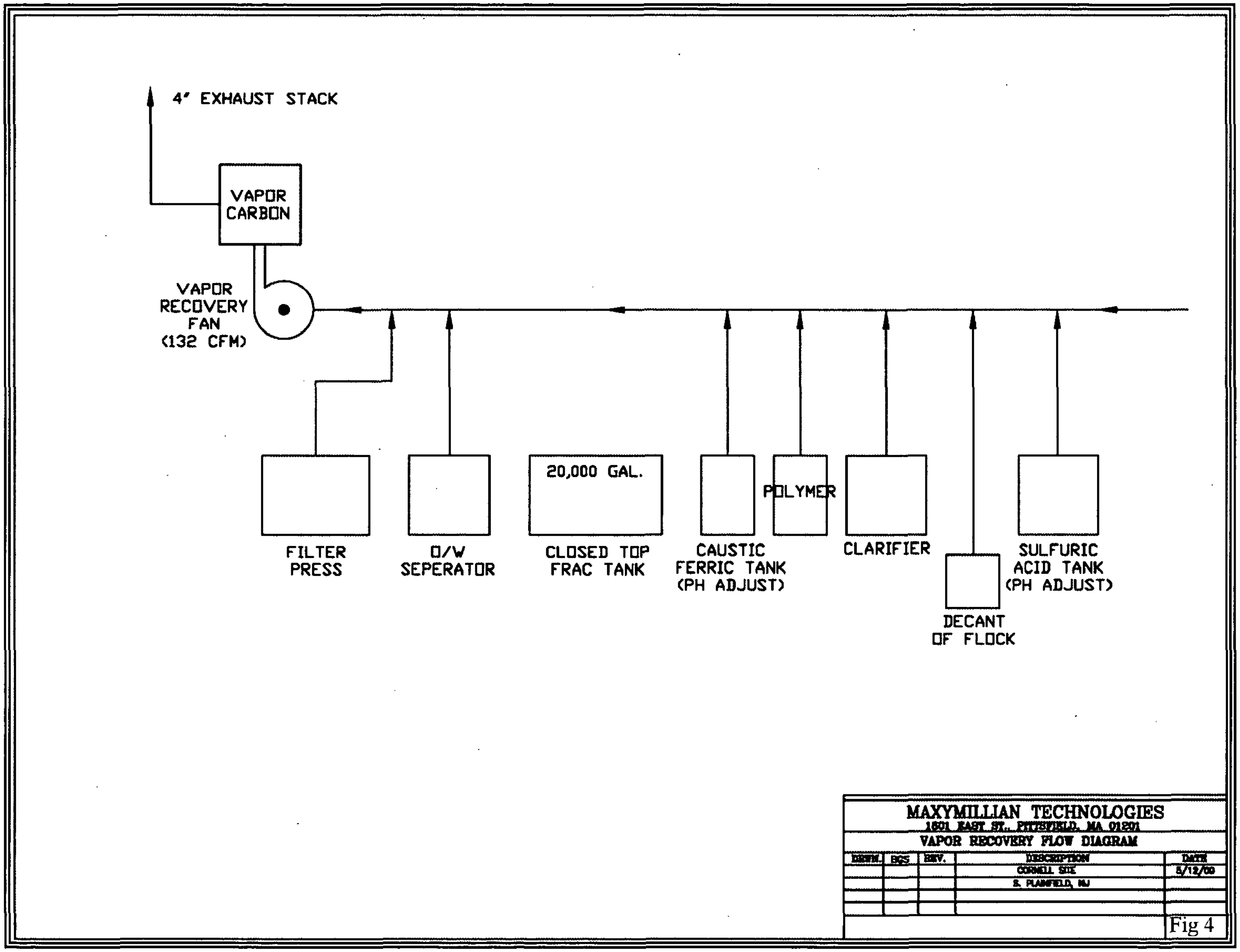


Figure 4: Series 3A Trailer Vapor Management System



4.0 STANDARD OPERATING PROCEDURES

A typical LTTD operating sequence is provided in Table 2 on the following page. This table outlines the methods of LTTD operation that MT personnel follow during LTTD operations including the startup, instrument preparation and soil treatment. The sequence is broken down by task for individual LTTD technicians and operators. Each employee shall receive site-specific training on the Standard Operating Procedures for the LTTD. The LTTD operations sequence may be subject to change depending on actual site conditions. Please note that this sequence may be applicable any time the LTTD unit is brought online and operated by MT personnel.

5.0 NORMAL SHUTDOWN SEQUENCE

The normal shutdown sequence would occur when the Operator chooses to have the LTTD unit go off-line.

1. The Operator would first stop the feed and operation of the Feed Pugmill to a level in the hopper portion where a soil seal is maintained to prevent ambient air from entering the Thermal Desorber.

2. The Thermal Desorber will continue to process soil until it is empty and discharge to the Breach through the Discharge Pugmill and Radial Stacker.

3. The firing rate for the Thermal Desorber burners will be reduced due to the termination of soil feed. Shell temperature will be closely monitored as the remaining soil progresses through the rotating drum.

4. The use of water to remoisturize the treated soils is discontinued when soil is no longer being discharged into the Discharge Pugmill.

5. The ID Fan will maintain a slight draft in the Thermal Desorber to purge the system of process gases. Therefore, condensation of cooled gases and subsequent vapor phase treatment will continue to occur. Condensate collection and water treatment will continue to occur until flows decline to a negligible level. All condensed liquids will discharge to the Water Treatment System, prior to treatment.

6. The Baghouse and Quench will shut down as the process gas drops below minimum differential pressure and temperature requirements respectively.

7. The ID Fan will be shut down.

Table 2: LTTD Operations

Personnel	Tasks
Control Room Operator	1. Turn on power supply backup. Boot up computer and scan all screens to make sure all field points are coming back to the computer. 2. Run feed conveyor and zero weigh scale. 3. Start ID fan 4. Start combustion air fan. 5. Notify field operator to start Quench pumps and verify flow (field operated). 6. Start Calciner (Drum) rotation 7. Notify field operator to start chiller (field operated). 8. Start burners, begin warm up. 9. Start water cooler fans. 10. Start Feed Pugmill. 11. Notify field operator to start chiller (field operated). 12. Notify pad supervisor to start radial stacker, Discharge Pugmill, double dump valves, Soil Cooling Silo fan, Bucket Elevator, rotary airlock and Discharge Auger.
Outside Operator	1. Ensure that water treatment plant is online, if needed for batch treatment of stored wastewater. 2. If propane is used to fuel the LTTD, confirm that propane vaporizer is on and fuel flow is present.
Pad Supervisor	At the request of the Control Room Operator, the Pad Supervisor will start the following components: Radial stacker Pugmill Double dump valves Soil Cooling Silo fan Bucket Elevator Rotary airlock Soil Discharge Auger Plant water pumps Pugmill Operator will add water as necessary to prevent dust emissions.
Field Technician	This person will monitor: Water Treatment System (when in operation) Quench flow and pressure Changing of the Quench pumps from standby to lead Gas exit temperature Quench sump temperature

6.0 ANTICIPATED OPERATING CONDITIONS

LTTD operating conditions for remediation activities at the CDE site will be determined upon successful Proof of Performance Test results. The following list of anticipated operating conditions is targeted for the three test runs that will comprise the Proof of Performance Test. Refer to Table 3 for information about applicable process operating parameters and conditions.

- 10 -20 tons per hour soil feed rate, actual soil feed rate will be demonstrated;
- The mass feed rate (in pounds per hour) of PCBs will be a function of the actual feed concentration and the demonstrated soil feed rate;
- 500-800°F soil exit temperature.

7.0 OPERATING ADJUSTMENTS

The following section identifies how MT will adjust LTTD operation based on variation in the material feed:

Prior to treatment by the LTTD, MT will blend soil feed material within a Soil Handling Building. The purpose of pre-treatment blending is to produce a homogenous pre-treatment feed material that minimizes process adjustments necessary by the LTTD unit during operation. Pre-treatment blending will produce a feed material consistent in moisture content, and PCB concentration. MT will evaluate soil characterization data, and blend soils as necessary to keep the expected PCB soil concentrations as consistent as possible.

Although pre-treatment of feed soils will be performed, adjustment to LTTD operations may be necessary. MT anticipates the following potential adjustments:

- If the expected PCB concentration is higher than anticipated, MT will slow down the soil feed rate;
- If the expected soil moisture content is higher than anticipated, MT will slow down the soil feed rate;
- If the expected soil moisture content is higher than anticipated, it may be necessary for MT to increase the flow rate of the liquid treatment devices to accommodate the increased volume of condensed moisture.

8.0 SUMMARY OF PROCESS OPERATING PARAMETERS

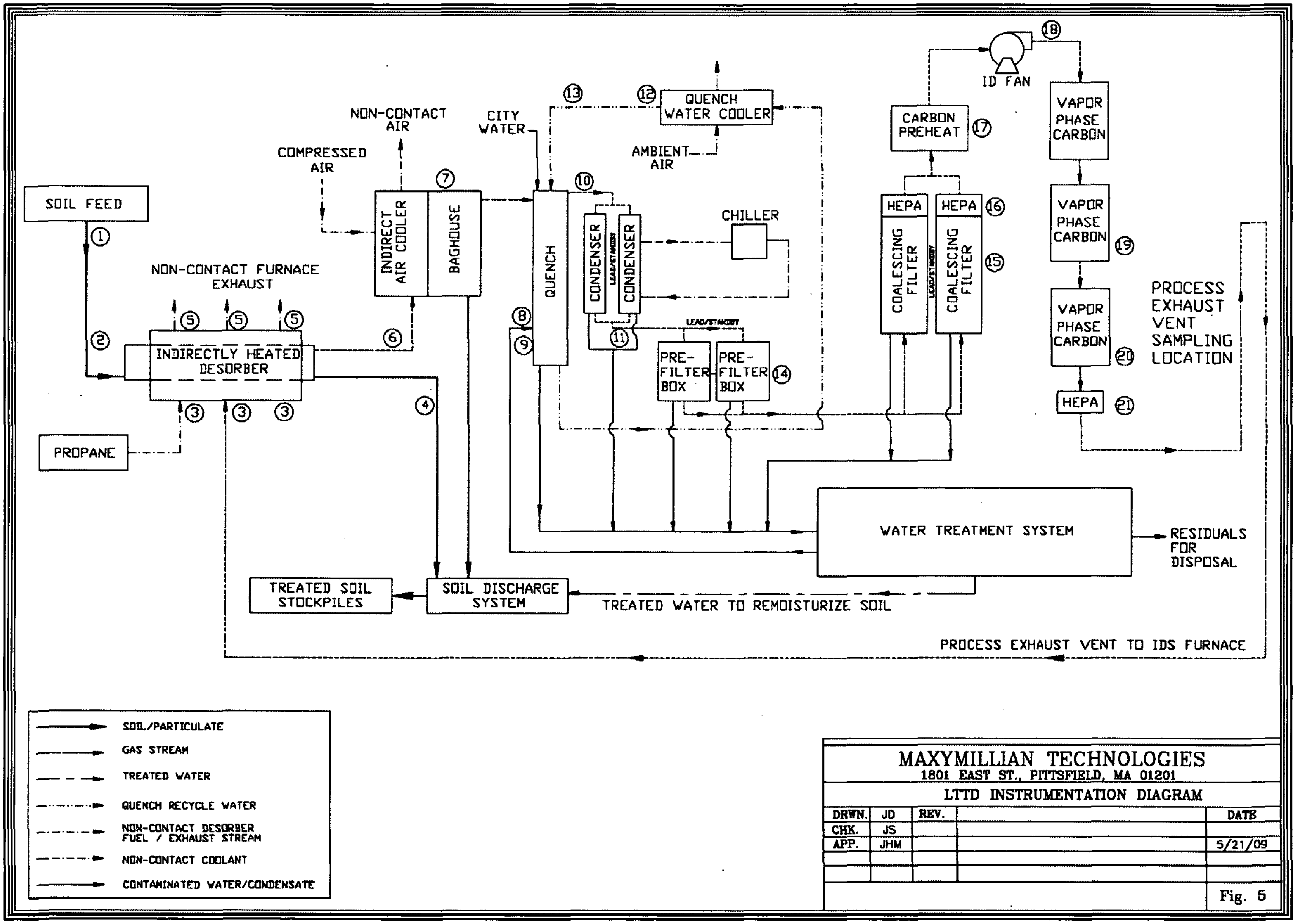
The LTTD unit is designed to operate effectively within particular operating parameters. The target values and upper and lower boundaries for major operating parameters have been established through extensive Research and Development, Demonstration Test studies, and remedial operations on eight previous projects utilizing the LTTD. The previous National TSCA Permit incorporated testing and operational experience into a workable format that allowed for a stable, productive operation protective of human health and the environment. Adherence to the target values and upper and lower boundaries will assure that operational objectives are met.

Other operating parameters are monitored to assure the efficient operation of system components and maintenance of permit operating conditions. Table 3 identifies the method, frequency, and location of process indicating devices/instrumentation for the LTTD. The operational parameters are numbered in Table 3 and correspond to the numbers in Figure 5. Figure 5 identifies the locations of the instrumentation on a process flow diagram. Table 4 provides a summary of the range and accuracy, calibration and maintenance procedures for the LTTD instrumentation.

In addition, based on soil throughput, treated soil will be sampled for PCBs for confirmatory purposes by SES and internal quality control by MT. During material processing, grab samples of treated soil, representative of the soil quantity processed, will be collected and composited. Analyses of treated soil will be compared to the treatment standards for the CDE site.

TABLE 3
Summary of Operational Parameters

#	Parameter	Method	Frequency	Location
1	Soil Feed Rate (tph)	Weigh Scale Integrator	Continuous	Feed Conveyor
2	Thermal Desorber Face Pressure	Differential Pressure Meter	Continuous	Calciner, Feed End
3	Thermal Desorber Shell Temperature	Thermocouples	Continuous	Thermal Desorber
4	Soil Exit Temperature	Thermocouples	Continuous	Soil Discharge Chute
5	Non Contact Furnace Exhaust Temperature	Thermocouples	Continuous	Furnace Exhaust Ports
6	Thermal Desorber Gas Exit Temperature	Thermocouples	Continuous	Soil Breach
7	Baghouse Pressure Drop	Differential Pressure Meter	Continuous	Baghouse
8	Quench Water pH	pH Meter	Continuous	Quench Sump
9	Quench Water Temperature	Thermocouples	Continuous	Quench Sump
10	Quench Gas Exit Temperature	Thermocouples	Continuous	Quench Gas Exit
11	Primary Condenser Gas Exit Temperature	Thermocouples	Continuous	Primary Condenser Exit
12	Quench Water Cooler Temperature	Thermocouple	Continuous	Quench Water Cooler Outlet
13	Quench Recirculation Water Flow	Flowmeter	Continuous	Quench Water Recirculation Line
14	Pre-Filter Differential Pressure	Differential Pressure Gauge	Continuous	HEPA Filter Housing
15	Coalescing Filter Differential Pressure	Differential Pressure Gauge	Continuous	Coalescing Filter Cabinet
16	HEPA Filter Differential Pressure	Differential Pressure Gauge	Continuous	HEPA Filter Housing
17	Carbon Pre-Heat Gas Exit Temperature	Thermocouple	Continuous	Carbon Pre-Heat Outlet
18	ID Fan Differential Pressure	Differential Pressure Meter	Continuous	Induced Draft Fan
19	Carbon Gas Exit Temperature	Thermocouple	Continuous	Lead Carbon Vessel Exit
20	Carbon Gas Exit Temperature	Thermocouple	Continuous	Polishing Carbon Vessel
21	HEPA Filter Differential Pressure	Differential Pressure Gauge	Continuous	HEPA Filter Housing


SOIL FEED
NON-CONTACT FURNACE EXHAUST
INDIRECTLY HEATED DESORBER
PROPANE
COMPRESSED AIR
NON-CONTACT AIR
INDIRECT AIR COOLER
BAGHOUSE
CITY WATER
QUENCH
CONDENSER
CONDENSER
QUENCH WATER COOLER
AMBIENT AIR
CHILLER
PRE-FILTER BOX
PRE-FILTER BOX
CARBON PREHEAT
ID FAN
HEPA
HEPA
COALESCING FILTER
COALESCING FILTER
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HEPA
PROCESS EXHAUST VENT SAMPLING LOCATION
WATER TREATMENT SYSTEM
RESIDUALS FOR DISPOSAL
TREATED SOIL STOCKPILES
SOIL DISCHARGE SYSTEM
TREATED WATER TO REMOISTURIZE SOIL
PROCESS EXHAUST VENT TO IDS FURNACE
SOIL/PARTICULATE
GAS STREAM
TREATED WATER
QUENCH RECYCLE WATER
NON-CONTACT DESORBER FUEL / EXHAUST STREAM
NON-CONTACT COOLANT
CONTAMINATED WATER/CONDENSATE
MAXYMILLIAN TECHNOLOGIES
1801 EAST ST., PITTSFIELD, MA 01201
LTTD INSTRUMENTATION DIAGRAM
DRWN. JD
CHK. JS
APP. JHM
REV.
DATE
5/21/09
Fig. 5

TABLE 4
Summary of Operational Parameter Instrumentation

#	Parameter	Instrument	Range and Accuracy	Calibration	Maintenance Procedures
1	Soil Feed Rate	Weigh Scale Integrator	0-60 tph 2% of calibration span	Zero and span calibration, machine directed procedure	Applicable procedures followed as described in O&M Manual
2	Thermal Desorber Face Pressure	Pressure Transmitter	-10" to +15" w.c. ± 0.25% of calibration span	Factory calibrated	Applicable procedures followed as described in maintenance section of Product Manual ROI*
3	Thermal Desorber Shell Temperature	Thermocouples	0-2,200°F 2.5% of calibration span	Factory calibrated	N/A
4	Soil Exit Temperature	Thermocouples	0-2,200°F 2.5% of calibration span	Factory calibrated	N/A
5	Non Contact Furnace Exhaust Temperature	Thermocouples	0-2,200 °F 2.5% of calibration span	Factory calibrated	N/A
6	Thermal Desorber Gas Exit Temperature	Thermocouples	0-2,200 °F 2.5% of calibration span	Factory calibrated	N/A ROI
7	Baghouse Pressure Drop	Differential Pressure Transmitter	0"-30" w.c. 5% of calibration span	Factory calibrated	Applicable procedures followed as described in maintenance section of Product Manual
8	Quench Water pH	pH Control—micro processor analyzer	pH units 0-14 5% of calibration span	Manufacturer's recommendation temperature adjustment, buffer calibration pH standardization	Manufacturer's recommendation
9	Quench Water Temperature	Thermocouples	0-2,200 °F 2.5% of calibration span	Factory calibrated	N/A
10	Quench Gas Exit Temperature	Thermocouples	2.5% of calibration span	Factory calibrated	N/A ROI

TABLE 4 (Continued)
Summary of Operational Parameter Instrumentation

#	Parameter	Instrument	Range and Accuracy	Calibration	Maintenance Procedures
11	Primary Condenser Gas Exit Temperature	Thermocouples	2.5% of calibration span	Factory calibrated	N/A ROI
12	Quench Water Cooler Temperature	Thermocouple	0-2,200 °F 2.5% of calibration span	Factory calibrated	N/A
13	Quench Recirculation Water Flow	Electromagnetic Flowmeter	0-400 gpm 5% of calibration span	Factory calibrated pulses per gallon. Output and digital display as per manufacturer's procedure.	Manufacturer's recommendation
14	Pre-Filter Differential Pressure	Magnetic Pressure Gauge	0"-30" water vac.	Factory calibrated	N/A
15	Coalescing Filter Differential Pressure	Magnetic Pressure Gauge	0"-30" water vac.	Factory calibrated	N/A
16	HEPA Filter Differential Pressure	Magnetic Pressure Gauge	0"-30" water vac.	Factory calibrated	N/A
17	Carbon Pre-Heat Exit Temperature	Thermocouple	0-2,200 °F 2.5% of calibration span	Factory calibrated	N/A
18	ID Fan Differential Pressure	Differential Pressure Transmitter	0"-60" w.c. 5% of calibration span	Factory calibrated	Applicable procedures followed as described in maintenance section of Product Manual
19	Carbon Gas Exit Temperature	Thermocouple	0-2,200 °F 2.5% of calibration span	Factory calibrated	N/A
20	Polishing Carbon Gas Exit Temperature	Thermocouple	0-2,200 °F 2.5% of calibration span	Factory calibrated	N/A
21	HEPA Filter Differential Pressure	Magnetic Pressure Gauge	0"-30" water vac.	Factory calibrated	N/A

ROI = Redundancy of Instrumentation

9.0 MONITORING PROCEDURES

9.1 OPERATING PARAMETERS

The objectives of the monitoring procedures are to monitor the system to verify that it is operating properly, safely, and consistently. Operational parameters of the system will be monitored to meet the requirements of the NJDEP. Some monitoring points are for MT Control Room Operators and plant personnel to diagnose plant operations. These parameters are not for reporting purposes. Some of these parameters are only localized field gauges and are not automatically recorded in the data acquisition system, or visible in the Control Room.

9.2 OPERATIONAL MONITORING PROCEDURES

For operational parameters, MT has incorporated manufacturer recommended, vendor supplied instrumentation for control of LTTD components. There are several operational parameters / recording points for the LTTD unit. Table 4 summarizes the instrumentation utilized to monitor the operational parameters, including where appropriate, range and accuracy, calibration procedure and maintenance procedures. For several operating parameters, MT has incorporated redundant instrumentation as a contingency for operating instrument failure.

9.3 COMPLIANCE PERFORMANCE REQUIREMENTS

The objective of this section is to assure that LTTD process instruments and analytical instruments are performing properly during operations. The equipment and instruments selected are those used to generate data for determining compliance with performance requirements and establishing quantitative permit conditions. Table 5 identifies the proposed control devises, monitoring parameters, and proposed operating ranges and requirements.

Table 5: Proposed Parametric Monitoring Points

Control Device ID	Control Device Description	Main Parameter(s) Monitored	Proposed Operating Range / Requirements
CD1	Baghouse	Pressure Drop (inches w.c.)	1 – 12 inches
CD2	Quench	Quench Flow Rate (gpm)	100 – 260 gpm
CD3	Condenser	Contaminant Side Outlet Temperature (°F)	32 – 60°F
CD4 CD5 CD6 CD10	Pre-Filter Box Coalescing Filter HEPA Filter HEPA Filter	Calciner Face Pressure (inches w.c.)	(-1) – 0 inches w.c.
CD7	Primary Adsorber	Soil Processing Rate in LTTD	Replacement after processing 10,000 tons of soil.
CD8 CD9	Secondary Adsorber Tertiary Adsorber	Soil Processing Rate in LTTD	Replace primary/secondary canisters every 10,000 tons of soil processed.
CD11	Burners	Process Monitors for CO, VOC & O_2	Monitor/record once per day during operation. CO Limit: 100 ppmvd @ 7% O_2 VOC Limit: 50 ppmvd @ 7% O_2

Notes:

The LTTD unit must be operated for at least 24 hours before the pressure drop within the baghouse reaches the proposed operating range of 1 – 12 inches.

The operating range for the calciner face pressure is -1 to 0 inches w.c. The soil feed to the LTTD will be automatically cut-off if the face pressure operates at -0.1" w.c. for more than 5 minutes or at 0.0" w.c. for more than 30 seconds.

After a discussion with NJDEP/BTS personnel, and due to the relatively small rated capacity of the LTTD unit and the short project duration, Maxymillian proposes to utilize portable process monitors (rather than a continuous emission monitor {CEM}) to measure CO and VOC emissions from a representative LTTD stack once per day.

9.4 INSPECTION PROCEDURES

Inspection procedures have been developed to provide for the identification and correction of potential problems and uniform operation of the LTTD unit. Conscientious implementation of the inspection program serves to minimize threats to the environment and public health. Routine inspection procedures will be performed by MT personnel or MT contractors or representatives before and during system operation. Inspection logs are divided into two categories. One for daily inspections and one for weekly inspections. In addition, construction equipment inspections will take place. See Appendix C for inspection checklists and a lubrication schedule. A visual inspection will be conducted of the LTTD unit, and all gauges will be checked.

Before operations, these inspections will be conducted:

- inspection of equipment to ensure proper interfacing of piping and electrical connections;
- verification of mechanical integrity of emission control equipment;
- inspection of power distribution system for damage and faulty connections;
- inspection of control system for damage and faulty connections.

9.5 VAPOR PHASE CARBON CHANGE OUT FREQUENCY

The lead vessel of the Vapor Phase Carbon (VPC) will be changed out based on a frequency determined in accordance with the NJDEP Air Equivalency Permit.

It is anticipated that the change out frequency of the Lead Carbon Vessel will be every 10,000 tons. The Lead Vessel will be sent off for disposal at an approved facility. The vessel in the second position will be rotated to the lead position, the vessel in the tertiary position will be rotated to the second position, and a vessel will be loaded with fresh carbon and placed in the third (polishing) position.

10.0 WASTE HANDLING AND DISPOSAL

The waste streams that will be generated by the LTTD unit are:

- Filter cake from the filter press;
- Process filters;
- Vapor and liquid phase carbon that has exhibited breakthrough;
- Concentrated condensate liquid;
- Discarded Personal Protective Equipment (PPE);
- Decontamination cleaning solution.

The waste streams identified above will be regulated under the applicable sections of 40 CFR § 761 (TSCA) if they contain PCBs in concentrations at or above 50 ppm PCBs. All wastes generated during commercial operations will be properly handled, stored, and disposed. Wastes will be stored in a designated area at the site. Wastes are divided into two types: liquids and solids. It is MT's intent to store waste streams on-site for greater than 30 days. Storage procedures will meet the applicable sections of 40 CFR § 761 (TSCA). The procedures for handling and storage of wastes will be consistent with applicable TSCA regulations.

Analytical samples that are not used for analyses will be processed through the LTTD unit.

Wastes will be stored on-site until remedial operations are completed and arrangements for final off-site disposal are made. As stated previously, handling and storage procedures will meet the applicable sections of 40 CFR § 761 (TSCA).

Based upon the PCB concentration of feedstock soil, a determination will be made by MT to dispose of the specified material as a PCB-contaminated TSCA waste under 40 CFR § 761. Such material could include PPE, and other contaminated debris. If feedstock soils are 50 ppm or greater for PCBs, MT may sample these materials to determine their proper disposal.

If analysis of samples indicates that PCB concentrations are 50 ppm or greater, materials will be properly stored in dated and marked waste disposal containers for subsequent disposal at a TSCA-permitted facility. Materials will be stored on-site until remedial operations are completed and arrangements for final disposal are made. Handling and storage procedures will meet the applicable sections of 40 CFR § 761 (TSCA).

11.0 SAFETY PLAN

The Health and Safety Program for the LTTD unit will be implemented to ensure that adequate protection is given to on-site personnel and the environment. A Health and Safety Plan (HASP), which meets these objectives, has been prepared for the operation of the LTTD unit at each operating site. MT previously submitted the HASP for the CDE Site in South Plainfield, NJ.

The Health and Safety Program for system operation incorporates the following:

- Hazard and Risk Analysis;
- General Construction and Site Specific Training;
- Monitoring;
- Personal Protection and Safety Equipment;
- Decontamination Protocols;
- Site Control;
- General Safety;
- Inspections;
- Spill Prevention Control;
- Emergency Response and Equipment;
- Contingency Plan;
- Evacuation Plan;
- Recordkeeping;
- Contingency measures in the unlikely event that fire or other emergencies occur;
- Decontamination protocols for personnel, materials, and equipment exposed to PCB-contaminated soils.

11.1 EQUIPMENT DESIGN FOR SAFETY

The LTTD unit is designed to reduce the potential for fire. The Thermal Desorber is constructed of non-flammable materials. The temperature is constantly monitored and controlled. The air pollution control equipment and all interconnecting piping are grounded against static electricity. Fire extinguishers will be available on-site at all times. The health and safety training for personnel will include fire prevention and fire safety.

11.2 Emergency Conditions

In the event of an emergency, such as a malfunction in the LTTD unit or air emission control equipment, emergency shutdown procedures will be implemented. The following are actions to be taken for given emergency conditions:

In the event of an uncontrolled fire:
1. The Site Health & Safety Officer, Project Manager / Thermal Manager, or designate will evacuate all non-essential personnel from the site.
2. Call the local Emergency Response Team as identified in the Health and Safety Plan.
3. Shut down the LTTD unit and discontinue power.
4. Wait for Emergency Response Team to arrive to fight an uncontrolled fire.

In the event of malfunction of a system component:
1. Isolate the malfunctioning component from the system.
2. Ensure the back-up component is functioning.
3. Immediately investigate the cause of the malfunction and repair component.

In the event of a power failure:
1. Manually operate gas-powered engine to rotate Calciner.
2. Proceed with standard shutdown procedures.

Trained MT personnel will be on-site continuously during the operating cycle.

11.3 Emergency Systems Demonstration

MT will simulate emergency conditions in order to fully test the operation of all emergency features, alarms, and systems of the LTTD unit. This will include situations requiring partial and total shutdowns of the LTTD unit that required:

- Fire hazard/safety awareness to ensure equipment function and employee training;
- A systematic review of all instrumentation and alarms in order to verify that, in the case of an emergency, all function as designed, i.e., to warn personnel and/or to act upon the LTTD unit in such a way as to alleviate the problem.

11.4 TRAINING PLAN

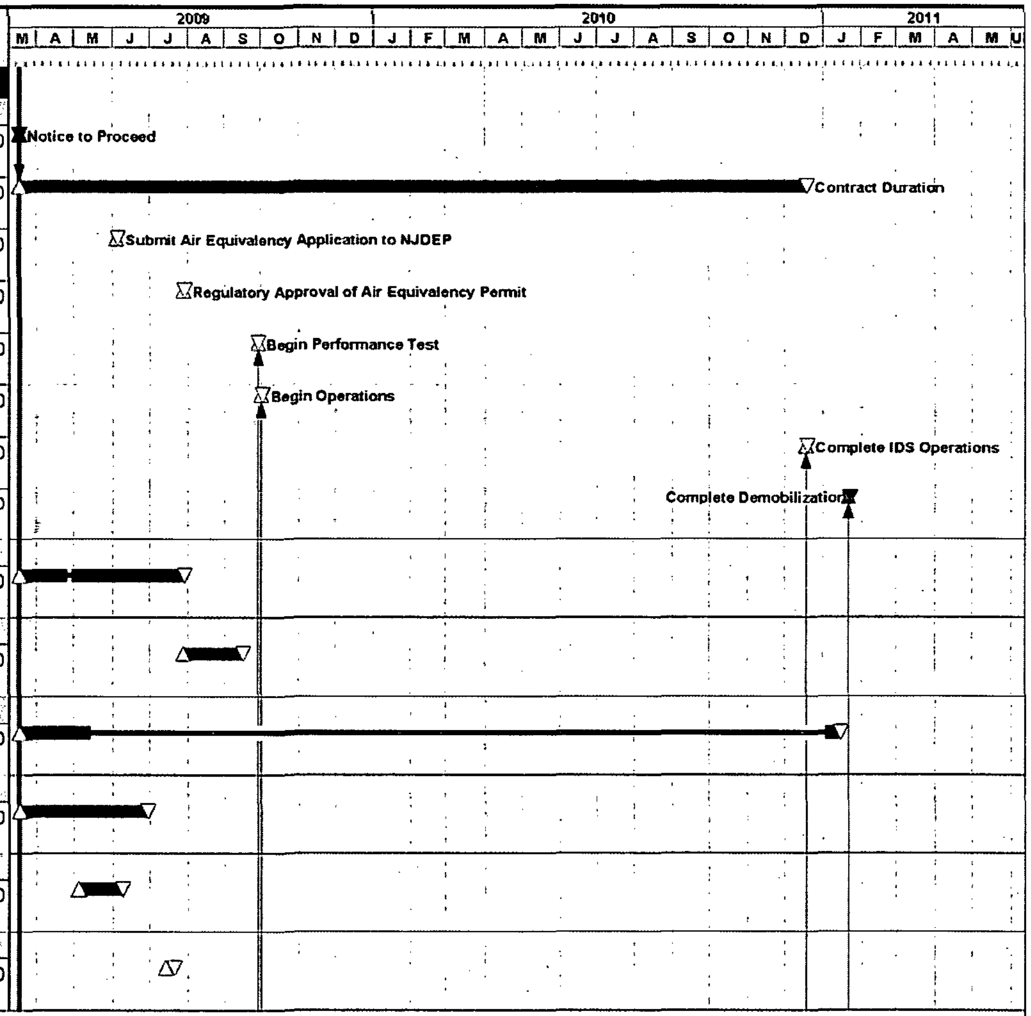
All site personnel working in the exclusion zone, as defined in the Health and Safety Plan, will have 40 hours of hazardous waste site worker training in accordance with OSHA requirements (29 CFR §1910.120). Additionally, site workers will receive site-specific training in equipment operation, emergency shutdown procedures, use of protective clothing, waste handling, spill prevention and control, fire control, and information regarding the hazards of PCBs. The HSO will coordinate health and safety training for site workers.

Specific safety briefings will be conducted by the HSO prior to site activities to ensure that personnel are adequately familiar with the tasks to be conducted and proper safety precautions. Included in this briefing will be the following: site tasks; site Health and Safety Plan; PPE; buddy system; emergency response; fire control; hospital routes; and decontamination. For repetitive tasks, initial briefings and periodic reviews prior to the particular task will be conducted.

Appendix A

Operating Schedule

Activity ID	Activity Description	Orig Dur	Rem Dur	%	Fcst Start	Fcst Finish	Cal ID	Budgeted Cost
PRE-CONSTRUCTION								
Milestones								
MS-005	Notice to Proceed	1	0	100	18MAR09A	18MAR09A	1	0.00
MS-010	Contract Duration	640	640	0	19MAR09	18DEC10	2	0.00
MS-015	Submit Air Equivalency Application to NJDEP	1	1	0	05JUN09	05JUN09	1	0.00
MS-020	Regulatory Approval of Air Equivalency Permit	1	1	0	29JUL09	29JUL09	1	0.00
MS-025	Begin Performance Test	1	1	0	28SEP09	28SEP09	1	0.00
MS-030	Begin Operations	1	1	0	01OCT09	01OCT09	1	0.00
MS-035	Complete IDS Operations	1	1	0	18DEC10	18DEC10	2	0.00
MS-040	Complete Demobilization	1	1	0	21JAN11	21JAN11	1	0.00
+ Air Equivalency Application								
		96	96	0	18MAR09	29JUL09	1	93,628.00
+ Proof of Performance Plan								
		35	35	0	29JUL09	15SEP09	1	0.00
+ Health & Safety Submittals								
		477	477	0	19MAR09	14JAN11	1	0.00
+ Product Data								
		74	74	0	18MAR09	29JUN09	1	215,371.00
+ Shop Drawings								
		25	25	0	05MAY09	08JUN09	1	0.00
+ Products								
		5	5	0	15JUL09	21JUL09	1	0.00



Project Start	12MAR09
Project Finish	21JAN11
Data Date	18MAR09
Run Date	27MAY09

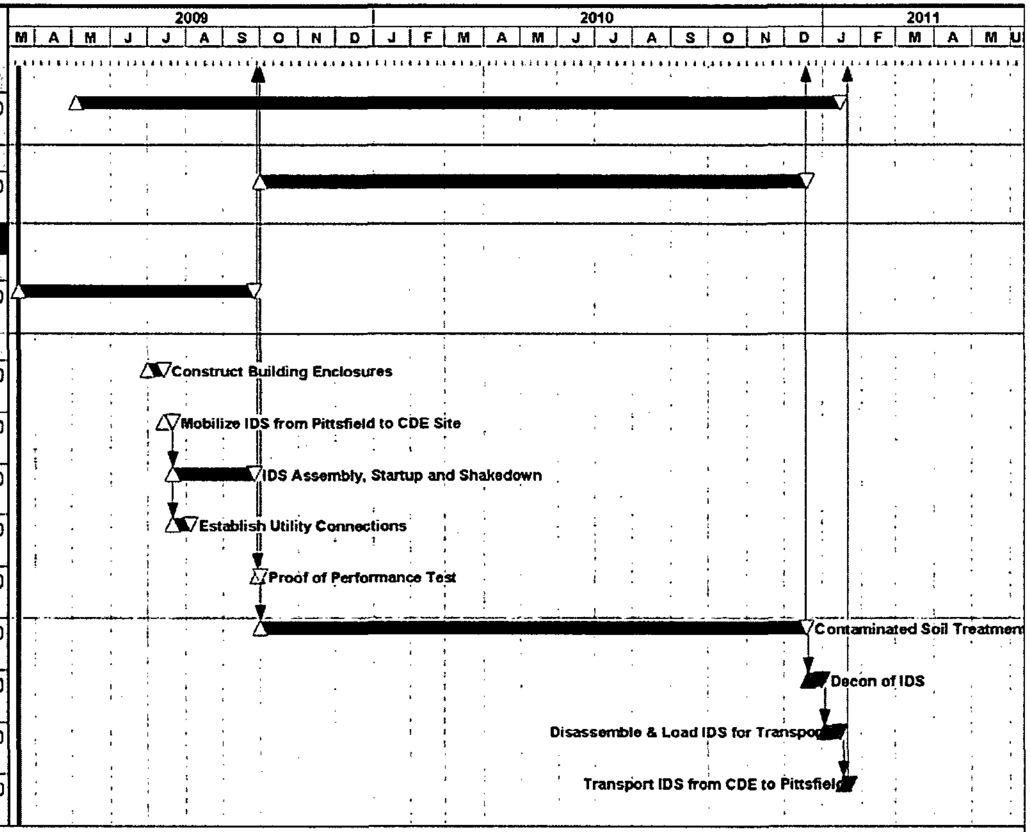
Early Bar
Progress Bar
Critical Activity

CDES

Sheet 1 of 2

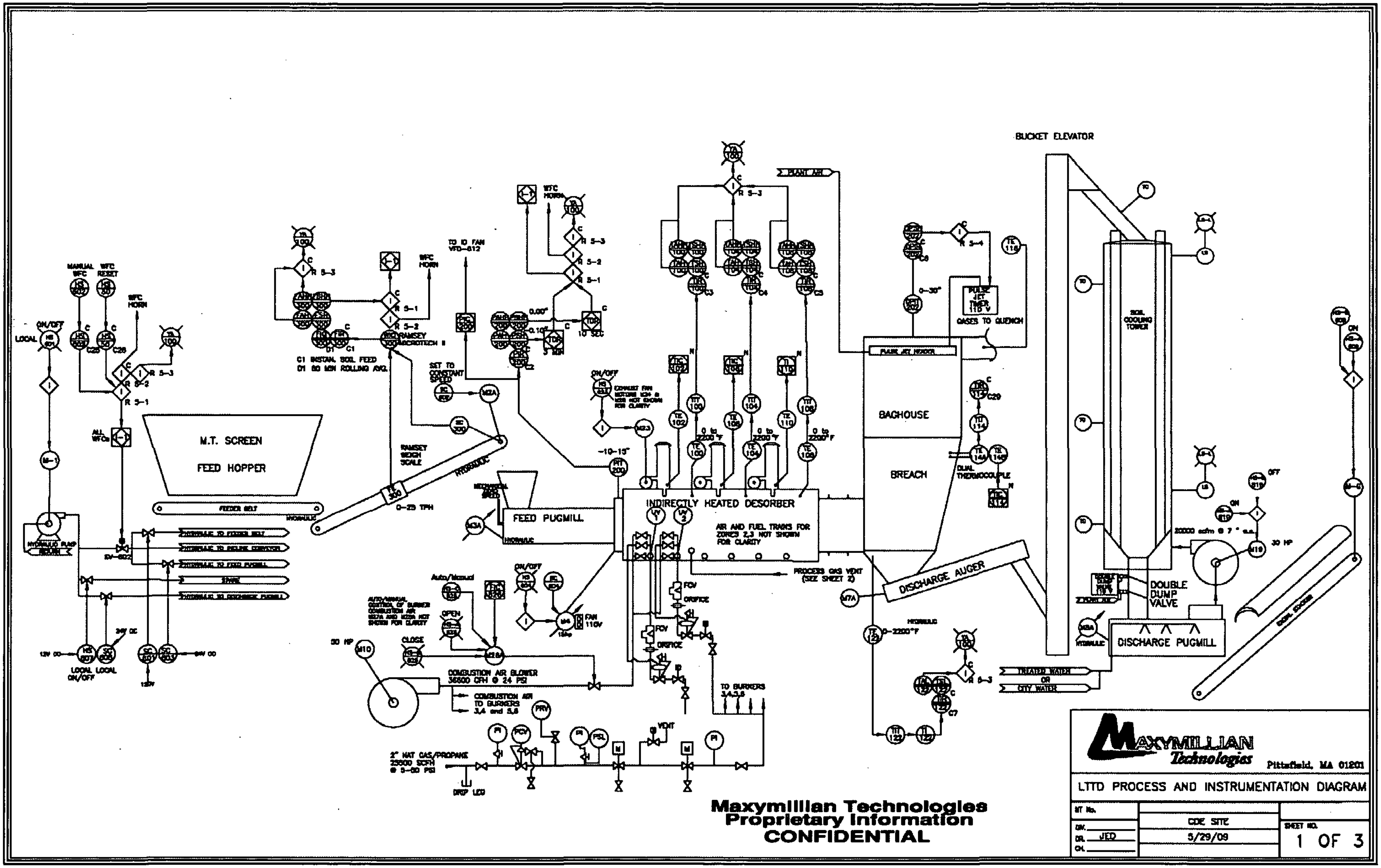
CDE Superfund Site

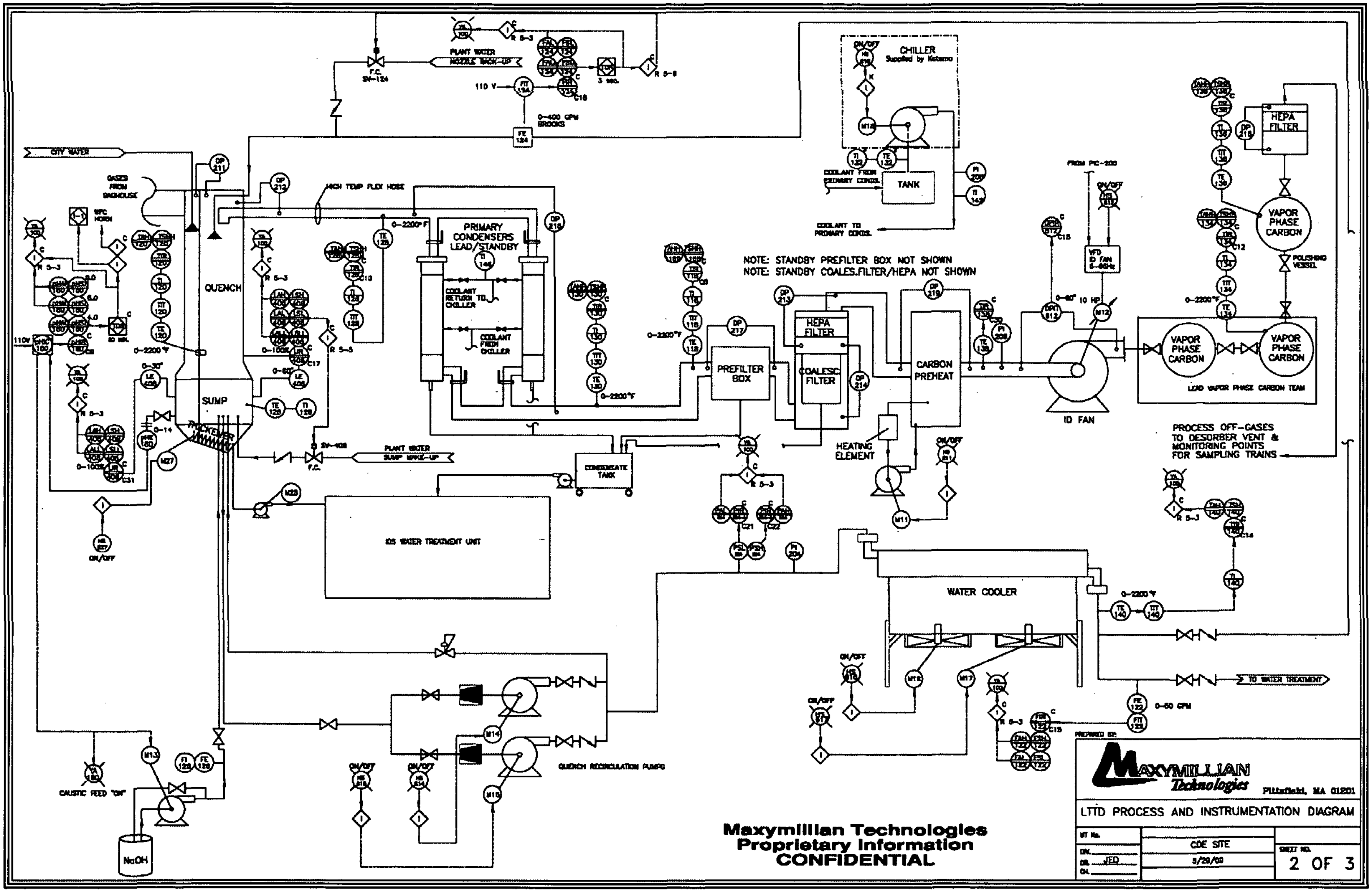
Activity ID	Activity Description	Orig Dur	Rem Dur	%	Fcst Start	Fcst Finish	Cal ID	Budgeted Cost
+ Reports								
		444	444	0	05MAY09	14JAN11	1	0.00
+ Weekly Logs								
		444	444	0	01OCT09	18DEC10	2	0.00
CONSTRUCTION - GENERAL								
+ Procurement & IDS Preparation								
		138	138	0	18MAR09	25SEP09	1	0.00
Site Operations								
SO-005	Construct Building Enclosures	10	10	0	01JUL09	14JUL09	1	0.00
SO-015	Mobilize IDS from Pittsfield to CDE Site	5	5	0	15JUL09	21JUL09	1	2,297,240.00
SO-020	IDS Assembly, Startup and Shakedown	48	48	0	22JUL09	25SEP09	1	0.00
SO-025	Establish Utility Connections	10	10	0	22JUL09	04AUG09	1	0.00
SO-030	Proof of Performance Test	3	3	0	28SEP09	30SEP09	1	251,796.00
SO-035	Contaminated Soil Treatment Operations	444	444	0	01OCT09	18DEC10	2	14,425,566.00
SO-040	Decon of IDS	10	10	0	20DEC10	31DEC10	1	45,000.00
SO-045	Disassemble & Load IDS for Transport	10	10	0	03JAN11	14JAN11	1	127,500.00
SO-050	Transport IDS from CDE to Pittsfield	5	5	0	17JAN11	21JAN11	1	65,000.00

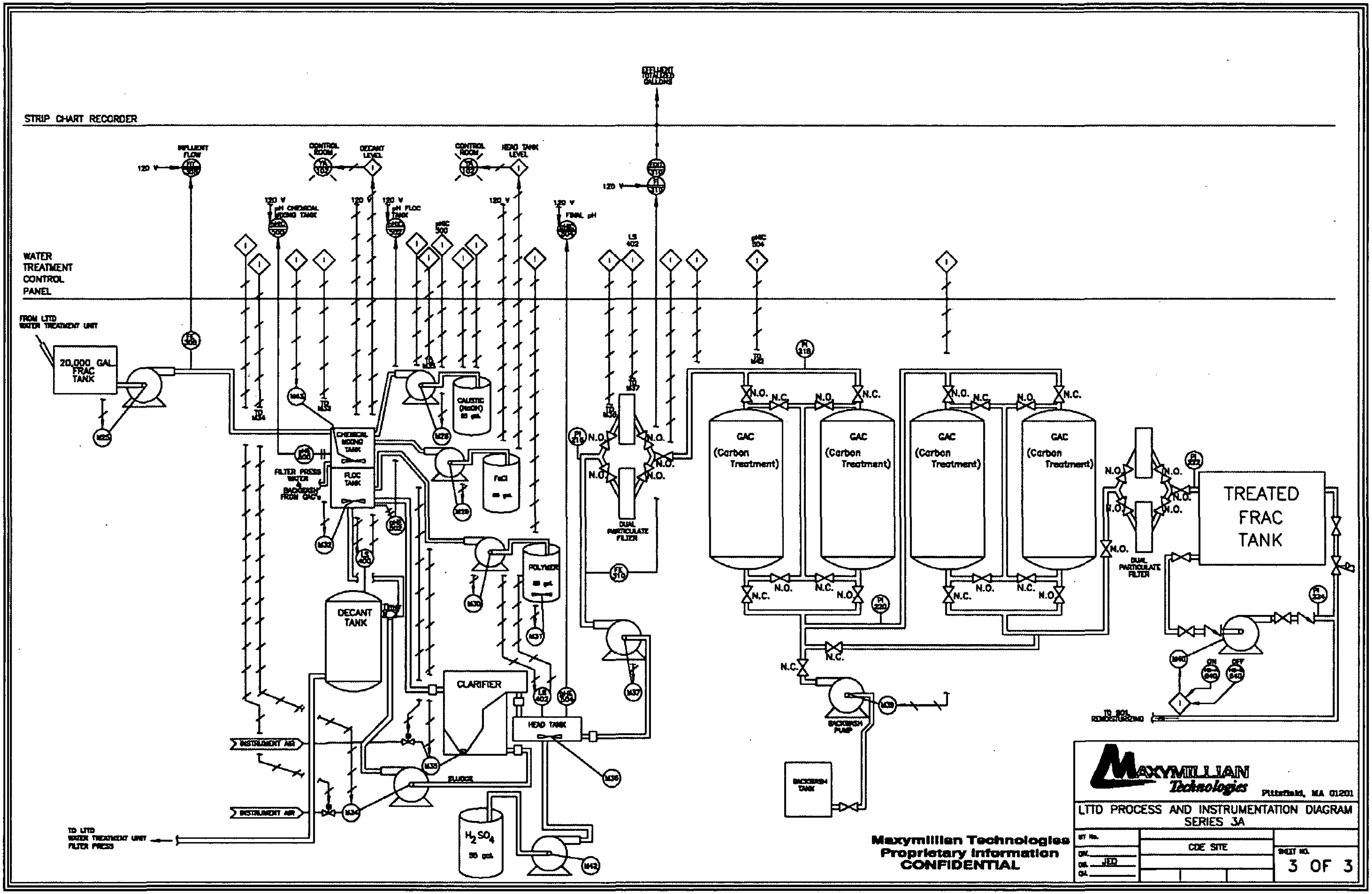


Appendix B

Process and Instrumentation Diagram


BUCKET ELEVATOR
M.T. SCREEN
FEED HOPPER
FEED PUGMILL
INDIRECTLY HEATED DESORBER
AIR AND FUEL TRAINS FOR ZONES 2,3 NOT SHOWN FOR CLARITY
BAGHOUSE
BREACH
DISCHARGE AUGER
DOUBLE DUMP VALVE
DISCHARGE PUGMILL
SOIL COOLING TOWER
COMBUSTION AIR BLOWER 36800 CFH @ 24 PSI
TO BURNERS 3,4,5,6
PROCESS GAS VENT (SEE SHEET 2)
GASES TO QUENCH
TREATED WATER OR CITY WATER
C1 INSTAN. SOIL FEED
D1 60 MIN ROLLING AVG.
RAMSEY WEIGH SCALE
0-25 TPH
SET TO CONSTANT SPEED
TO ID FAN VFD-612
DUAL THERMOCOUPLE
Maxymillian Technologies
Proprietary Information
CONFIDENTIAL
Maxymillian Technologies
Pittsfield, MA 01201
LTTD PROCESS AND INSTRUMENTATION DIAGRAM
CDE SITE
5/29/09
JED
1 OF 3


CHILLER
HEPA FILTER
VAPOR PHASE CARBON
POLISHING VESSEL
QUENCH
SUMP
PRIMARY CONDENSERS LEAD/STANDBY
NOTE: STANDBY PREFILTER BOX NOT SHOWN
NOTE: STANDBY COALES.FILTER/HEPA NOT SHOWN
PREFILTER BOX
COALESC FILTER
CARBON PREHEAT
ID FAN
LEAD VAPOR PHASE CARBON TEAM
PROCESS OFF-GASES TO DESORBER VENT & MONITORING POINTS FOR SAMPLING TRAINS
HEATING ELEMENT
CONDENSATE TANK
WATER COOLER
TO WATER TREATMENT
QUENCH RECIRCULATION PUMPS
CAUSTIC FEED "ON"
NaOH
Maxymillian Technologies
Proprietary Information
CONFIDENTIAL
MAXYMILLIAN Technologies Pittsfield, MA 01201
LTTD PROCESS AND INSTRUMENTATION DIAGRAM
CDE SITE
2 OF 3


STRIP CHART RECORDER
WATER TREATMENT CONTROL PANEL
FROM LTTD WATER TREATMENT UNIT
20,000 GAL. FRAC TANK
CHEMICAL MIXING TANK
FLOC TANK
FILTER PRESS WATER & BACKWASH FROM GAC's
CAUSTIC (NaOH)
FeCl
POLYMER
DECANT TANK
CLARIFIER
HEAD TANK
SLUDGE
INSTRUMENT AIR
INSTRUMENT AIR
TO LTTD WATER TREATMENT UNIT FILTER PRESS
DUAL PARTICULATE FILTER
GAC (Carbon Treatment)
GAC (Carbon Treatment)
GAC (Carbon Treatment)
GAC (Carbon Treatment)
N.O.
N.C.
DUAL PARTICULATE FILTER
TREATED FRAC TANK
BACKWASH PUMP
BACKWASH TANK
Maxymillian Technologies Proprietary Information CONFIDENTIAL
MAXYMILLIAN Technologies
Pittsfield, MA 01201
LTTD PROCESS AND INSTRUMENTATION DIAGRAM SERIES 3A
CDE SITE
JED
3 OF 3

Appendix C

Inspection Checklist

Indirect Desorption System Inspection Log
DAILY INSPECTIONS

Inspector: ______________________________ Date: __________

Title: ______________________________ Time: ________

Area / Equipment	Check	Status	Observations Remedial Actions
Feed Screen	belt condition		
	bearing condition		
	roller condition		
	wiper condition		
	screen condition		
	hyd hoses condition		
	signs of leaks		
	controls free		
	controls adjusted properly		
Feed Pugmill	chain condition		
	sprocket condition		
	hoses condition		
	signs of leaks		
	chain guard		
Calciner	bull gear		
	trunnions		
	bearings condition		
	Seals		
	all guards		
Discharge Auger	chain		
	sprockets		
	bearing condition		
	signs of leaks		
	chain guards		

Indirect Desorption System Inspection Log
DAILY INSPECTIONS (cont.)

Area / Equipment	Check	Status	Observations Remedial Actions
Radial Stacker	drive belts		
	main belt condition		
	lacing condition		
	bearing condition		
	rollers condition		
	wipers condition		
	wipers adjustment		
	belt guards		
Quench Pumps	hoses condition		
	signs of leaks		
	couplings		
Caustic	check quantity		
	caustic condition		
	pump condition		
Water Cooler	drive belts		
	vibration detectors		
Chiller	oil levels in compressors		
	signs of leakage		

Indirect Desorption System Inspection Log
WEEKLY INSPECTIONS

Inspector: ____________________ Date: __________

Title: ____________________ Time: ______

Area / Equipment	Check	Status	Observations Remedial Actions
Feed Screen	control linkage for wear		
	chain on VSD		
	sprockets on VSD		
	level of hyd oil		
Feed Pugmill	paddles condition		
	seals for leakage		
Calciner	bull gear alignment		
	bull gear wear		
	fuel in aux motor		
	oil in aux motor		
	running condition of aux motor		
Discharge Pugmill	paddles condition		
	arms condition		
	chain condition		
	sprockets condition		
Radial Stacker	level of gear box oil		
Water Cooler	check fan shaft bearings		
	tension of drive belts		

INDIRECT SYSTEM
LUBRICATION SCHEDULE

LOCATION	FREQUENCY								
		CHECKED	LUBRIC	CHECKED	LUBRIC	CHECKED	LUBRIC	CHECKED	LUBRIC
FEED SCREEN BEARINGS AND ROLLERS	**DAILY**								
FEED SCREEN CHAIN AND SPROCKETS ON VSD	**WEEKLY**								
CALCINER BULL GEAR	**WEEKLY**								
DISCHARGE AUGER BEARINGS	**DAILY**								
DISCHARGE PUGMILL CHAIN AND SPROCKETS	**WEEKLY**								
RADIAL STACKER BEARINGS AND ROLLERS	**DAILY**								
WATER COOLER FAN SHAFT BEARINGS	**WEEKLY**								